Amendments to the Claims

1. (currently amended) A method of analyzing a ~~wafer~~ mask manufacturing process, the method comprising:

imaging at least a portion of a mask to be used in a wafer structure formation process;

simulating lithographic processing using data received from or derived from the imaging of the portion of the mask, thereby obtaining a first simulated wafer structure;

simulating lithographic processing using mask design data corresponding to the imaged portion of the mask as an input, thereby obtaining a second simulated wafer structure; ~~and~~

~~evaluating the portion of the mask by~~ comparing the first simulated wafer structure to ~~a resulting~~ the second simulated wafer structure~~, wherein the resulting wafer structure is an ideal target layer structure on a wafer~~; and

based on the comparing step, evaluating critical dimension variations across the wafer structure.

2. (cancelled)

3. (cancelled)

4. (currently amended) A ~~The~~ method of ~~claim 3,~~ analyzing a mask manufacturing process, the method comprising:

imaging at least a portion of a mask to be used in a wafer structure formation process;

simulating lithographic processing using data received from or derived from the imaging of the portion of the mask, thereby obtaining a first simulated wafer structure;

simulating lithographic processing using mask design data corresponding to the imaged portion of the mask as an input, thereby obtaining a second simulated wafer structure;

providing a user an option of selecting a figure of merit (FOM) by which critical dimension variations between the first and second simulated wafer structures are to be calculated; and

calculating critical dimension variations between the first and second simulated wafer structures based on the user-selected FOM.

5. (original) The method of claim 4, wherein the FOM is a line width.

6. (previously presented) The method of claim 4, wherein the FOM is a percentage difference in overall area of the first and second simulated structures.

7. (currently amended) The method of claim 1 ~~3~~, where first and second simulated wafer structures are obtained by the same simulation method.

8. (currently amended) The method of claim 1 ~~3~~, where first and second simulated wafer structures are obtained by aerial image simulation.

9. (currently amended) The method of claim 1 ~~3~~, where first and second simulated wafer structures are obtained by different simulation methods.

10. (currently amended) The method of claim 1, further comprising displaying the first simulated wafer structure on a display screen.

11. (currently amended) The method of claim 10, further comprising displaying ~~a~~ the second simulated wafer structure on the display screen, wherein the first and second simulated wafer structures at least partially overlap with one another.

12. (original) The method of claim 11, providing a user an option of selecting a figure of merit (FOM) by which critical dimension variations between the simulated wafer structures are to be calculated.

13. (original) The method of claim 1, wherein the imaging includes using a scanning electron microscope (SEM) to obtain an SEM image.

14. (original) The method of claim 13, further comprising transforming the SEM image into computer-readable data.

15. (original) The method of claim 14, wherein the transforming includes applying an image analysis algorithm to the image data.

16. (original) The method of claim 14, further comprising scaling the data.

17. (original) The method of claim 1, further comprising transforming data of a first type, obtained in the imaging, into data of a second type, to be used in the simulating.

18. (original) The method of claim 1, wherein the simulating includes aerial simulation using a computer program.

19. (original) The method of claim 18, wherein the simulating also includes simulating the developed resist image.

20. (original) The method of claim 1, wherein the simulating includes simulating using an aerial image microscope system.

21. (cancelled)

22. (currently amended) The method of claim 1 ~~2~~, wherein design data of a desired wafer structure is compared with at least one of the first simulated wafer structure and the second simulated wafer structure.

23. (currently amended) The method of claim 11, further comprising displaying at least one ideal wafer structure and an actual wafer structure, and

comparing the first simulated wafer structure, the second simulated wafer structure, and at least one of the ideal wafer structure and the actual wafer structure with one another or with a reference wafer structure.

24. (currently amended) The method of claim 1, ~~wherein the~~ further comprising forming at least one of the first and second simulated wafer structures ~~is formed~~ at various stages of the wafer structure formation process, and overlaying all of the simulated wafer structures on a display screen.

25. (new) The method of claim 1, further comprising comparing the first and second simulated wafer structures to an ideal wafer structure.

26. (new) The method of claim 1, further comprising determining a location of greatest critical dimension variation between the first and second simulated wafer structures.

27. (new) A method of analyzing critical dimension variations caused by a mask manufacturing process, the method comprising:

imaging at least a portion of a mask to be used in a wafer structure formation process the mask being formed by the mask manufacturing process;

simulating lithographic processing using data received from or derived from the imaging of the portion of the mask, thereby obtaining a first simulated wafer structure;

simulating lithographic processing using mask design data corresponding to the imaged portion of the mask as an input, thereby obtaining a second simulated wafer structure; and

comparing the first and second simulated wafer structures based on a user-selected figure of merit (FOM).